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ABSTRACT

This document reviews the published empirical literature concerned with the relationship between self concept and academic achievement. The construct of self concept is discussed with regard to common uses, measurement, and experimental development. Descriptions of relevant studies are presented according to their experimental designs or methods of statistical analysis. Correlational analysis of variance, mean differences, and discrepancy studies are reviewed. Also, self concept and achievement research that focuses on ethnic, racial, and socioeconomic status, and sex differences is included. It is concluded that the literature clearly indicates some significant relationship (at least associational) between some aspects of the self and scholastic achievement. The nature of this relationship is unclear, as there is little evidence of causation and there is little uniformity in definition and approaches to measurement of the self concept. (DP)

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RELATIONSHIPS BETWEEN SELF-CONCEPT AND SCHOOL ACHIEVEMENT: A SURVEY OF EMPIRICAL INVESTIGATIONS*

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An impressive number of empirical investigations exist which attempt to establish and clarify relationships between self-perceptions and school achievement. The empirical literature is supplemented by extensive speculative literature. It seems to be widely believed that significant relationships exist between self-concepts and school achievement (Hamachek, 1971, pp. 177-189; LaBenne and Greene, 1969, pp. 24-27; Purkey, 1970, pp. 14-27). The purpose of this review is to survey as completely as possible the empirical literature in which both self-concept and school achievement were measured. There may be many unpublished studies such as theses which are not included. A large proportion of these investigations involves preadolescent subjects. Early childhood educatiors will be interested in relationships between self-concept and achievement. If there are substantial relationships between self-concept and achievement, early childhood intervention strategies should reflect these relationships.

The results of our survey are organized as follows. We will briefly discuss the construct of self-concept, its measurement, and its experimental development. Then the studies will be discussed according to the statistical methods used. Sections are included on discrepancy studies and ethnics, race, socioeconomic status, and sex differences as well as conclusions.

Self-Concept as a Construct

Individualistic western cultures have placed traditionally high value on constructs termed variously as self-identity, self-esteem, self-worth, and self-awareness among others. "Know thyself" and "love thyself" are imperatives deeply grounded in Western culture. Such terms and imperatives indicate that Western culture traditionally values the individual who sees himself as a separate identity and who is aware and appreciative of his own individual characteristics.

These common terms of self-worth and self-identity are reflected in the psychological variable self-concept or self-image. The self typically has played

an important role in many traditional personality theories (Allport, 1937; Lewin, 1936; Mead, 1934; Murphy, 1947; and Cattell, 1950) and many approaches to therapy (Roger, 1951; Freud, 1943; Horney, 1950; and Sullivan, 1953) as well as many general behavior theories (Combs and Snygg, 1959; and James, 1890). This traditional centality of self in psychological literature has been reaffirmed in recent years through rapidly expanding research and literature on the self-concept or self-image (Wylie, 1961; Rosenberg, 1965; Yamamoto, 1972; Coopersmith, 1967; Hamachek, 1971; Fitts, 1964; Purkey, 1970; LaBenne and Greene, 1969; and Jersild, 1952).

The self-concept is usually defined as the person's attitudes, feelings, and knowledge about his abilities, skills, appearance, competencies, and social acceptability (LaBenne and Green, 1969, p. 10; Yamamoto, 1972, p. 3). This definition suggests several different dimensions: Body image (how one perceives himself physically), Social/personal acceptability (how one accepts one's characteristics and how the person thinks others accept him) and self-competence (how the person perceives his competence). The construct, personal identity, is also usually defined in these terms.

Events, according to Combs and Snygg (1959) are interpreted by a person in terms of the relationship of those events with the person's self. The behavioral influence of those events depend upon this interpretation. Thus in some psychological points of view, the self-concept is a central intervening variable, mediating between events (stimuli) and behavior. Beyond this point of view is the apparent significance of a person's tacit or spoken constellation of answers, to such questions as: What am I? Am I competent? In what areas am I competent? Am I acceptable to other persons? and, How am I viewed by others?

Measurement of self-concept

Measuring the self-concept is made problematic by the existence of numerous self-measures (e.g., those developed by Fitts, 1964; Andrews, 1970; Coopersmith, 1967;

Rosenberg, 1965; Bills, 1958; Gordon, 1966; and McKinney, 1967) some with no reliability and empirical validity data and others with relatively low reliability and validity data. The Educational Testing Service has recently published a bibliography of self-concept measures (1973). Many investigators rely heavily on face validity. Andrews (1970), and Wylie (1962), and LaBenne and Green (1969) present reviews of these and other problems in the measurement of the self-concept.

Some of these instruments have been developed for and used only with subjects of middle childhood age and others only with adolescents. None of the instruments has emerged to become widely used by most investigators. Reviewers note that these numerous instruments are not equivalent (LaBenne and Green, 1969), that is to say that the different measures do not always evoke responses from subjects about similar constructs of self. Vincent (1972) found significant correlations when several self measures were administered to the same subjects. Andrew's (1970, p. 48ff) excellent review also reveals that self measures are moderately stable.

Self-concept as a nonunitary trait

The value of a nonunitary approach in the study of psychological traits or constructs has been widely acclaimed especially in the study of intelligence (Guilford, 1959; Cattell and Butcher, 1968) and creativity (Guilford, 1965). A factoral approach should also be fruitful in the measurement and study of self-concept. The wide variety of definitions available as well as the wide variety of perceptions about self seems to indicate that self-concept is not a unitary trait.

For example, consider the fact that each person is likely to have a constellation of feelings, attitudes, and perceptions of body (self-image or body image)

of acceptability to others and of ability--including academic ability. These three are only conceptualized as possibilities. Actual factorial studies are likely to yield factors related to these as well as others. Such is

the case in Andrews (1970). Andrews found the following self-factors: striving for success (sufficiency, confidence, adequacy) nonconforming, conforming conscientious, physical and psychological self-worth, self a tense apprehensive, and aggressive-hostile.

The nonunitary view is also reflected in the great number of verbal descriptions used by writers in the area. Such terms as self-adequacy, self-acceptance (Combs, 1964; Piers and Harris, 1964, and Paschal, 1968); social, academic and personal competence (Coffin, 1971; Brookover, 1962, 1965, 1967); self-value (Taylor, 1964); self-esteem (Rosenberg, 1965; Sears, 1963; Spaulding, 1963, and Coopersmith, 1967) suggest that there are a number of perhaps related aspects of self-concept.

A number of studies reflect conceptualizations of a school achievement related dimension (factor) of self-concept. The term self-concept of ability is used (see Figure 1) which has to do with ability-achievement statements about self. Brookover's work (1962, 1965, 1967) is notable in this regard.

The self-concept and experience domains

Self-concept theorists generally recognize that self-perceptions arise experientially. That is, the child formulates self-perceptions as he interacts with his environment. As others accept or reject the child or the child's actions the child develops self-concepts of sociopersonal acceptability. As the child develops physically, self-concepts of body and environmental mastery are accrued.

The school is only one experience domain for a child. What happens to a child there and how he perceives those events, as important as they are, are not the only experiential sources for the development of the self-concept. Even more pointedly, what happens in the school in terms of the child's achievement is only one very specific source of specific feelings, attitudes, and perceptions of self.

The major point here is that one could expect that actual school achievement would most profoundly influence the child's feelings, attitudes, and perceptions about self and achievement. It is true that the school is rich in nonachievement related phenomena. Yet it has not been demonstrated that how the child achieves in school determines the psychic content of all other events occurring at school. Other children as well as teachers may well accept or reject a child or the child's actions independently of that child's achievement. The child's interpretation and resulting self-concepts may also be relatively independent of achievement.

Empirical Relationships

In this section of our survey we will discuss studies according to the type of statistical analysis. In the first group of studies correlational methods were used as a primary statistical analysis.

Correlational studies

In these studies few of them used the same measures of self or achievement. Studies are included if the investigator measured any aspect of self and correlated that measure with some measure of school achievement. Analysis of Figures 1 and 2 indicate that self-concept has some relationship with school achievement. That is, that self-concept is related in replicable ways to school achievement.

Figure 1 is a summary of studies correlating general self-concept and school achievement. Investigators have found statistically significant correlations ranging from +.18 to +.50. Most of these correlations reported in Figures 1 and 2 are very rough averages of a number of correlations between self-concept and achievement found by the investigators. That is, investigators frequently find different correlations for boys and girls (if the investigator actually runs different correlations) or different age-grade groups as well as different indices of achievement (e.g., reading, math, standardized achievement tests, teacher estimates). It was not feasible to plot all of these correlations in Figure 1.

Insert Figure 1 about here

Figure 2 is a summary of studies correlating some measure of self-concept of ability or academic ability as defined by the original investigator. These correlations are also rough estimates of averages of a number of correlations reported for the same reasons noted above. These correlations tend to run higher than the general self-concept and achievement correlations. The correlations range from +.27 to +.60. One might expect that self-concept of academic ability would have resulted in higher correlations with achievement than general self-concept. In terms of the experience domain discussion earlier in this paper one would expect that a person's concept of academic ability would have a higher correlation with actual school achievement.

Insert Figure 2 about here

To the best of the writer's knowledge all of these correlational studies used linear correlations. Nonlinear relationships occur fairly frequently in studies of a correlational nature. In any case all correlations are measures of association. One may not conclude that one variable causes another from correlational data.

All of the investigations discussed in this section and most of those in the following sections merely reflect an associational relationship rather than a causal relationship. Even though the search for causal relationships in the social sciences are somewhat futile, many persons seem to conceptualize causal relationships among variables such as self-concept and school achievement. In any case which causes which is a "which came first, chicken or egg?" controversy. One relatively recent statistical innovation, cross-lagged panel analysis, (Campbell, 1963; Pelz and Andrews, 1964), has helped to clarify such controversies.

Insert Figure 3 about here

Figure 3 is a diagram of a simple cross-lagged panel analysis. In such analyses measures are taken of two variables (A,B) at two times (A_1B_1, A_2B_2). (Correlations of A_1B_1 are of the type which we have discussed in this correlation section of our survey. Most of the research designs discussed later do not allow causal inferences to any greater extent than do A_1B_1 correlations.) Correlations of A_1B_2 and B_1A_2 are then run. If for example, the correlation of A_1B_2 is less than B_1A_2, then it is inferred that B_1A_2 is a more preponderant relationship. Calsyn (1973) ran two analysis; one on self-concept of ability (A_1) and achievement (B_1) and another on general self-concept (A_1) and achievement (B_1) using Brookover's (1965) data. Calsyn (1973) found that achievement was causally predominant over academic self-concept. That is, when A (Figure 3) is self-concept and B is achievement, the correlation of B_1A_2 is preponderant over A_1B_2. It appears from this analysis that achievement is the initial variable (the cause, the independent variable) whereas self-concept of ability is the dependent variable (the effect). Calsyn found no pattern of preponderance between general self-concept and achievement.

Analysis of variance

In this section studies using analysis of variance designs will be discussed.

Andrews (1970) used a factorial approach in measuring self-concept with fifth-, sixth-, and seventh-grade students. His achievement measures included the areas of mathematics, reading, and spelling. Subjects were grouped achievement wise into four groups: high, high average, low average, and low groups.

As might be expected, two self-concept factors were associated with achievement and several were not. The factor, self as nonconforming, was found to be related to achievement ($p. < .05$). Achieving pupils perceive themselves as independent whereas nonachieving pupils see themselves as dependent. The factor, self as

aggressive-hostile was also related to achievement ($p. < .05$) with nonachieving pupils perceiving themselves as aggressive-hostile while achievers do not. The factors of striving for success, conforming-conscientious, physical and psychological self-worth, and tense-apprehensive were not found to be related to achievement ($p. > 05$).

Hall, (1972) in a study of 468 college freshmen examined a number of personality variables including self-concept, as well as achievement level, socioeconomic status and ethnic background (Mexican American and Anglos). No significant ($p. > 05$) effect was found for self-concept on achievement.

Lekarczyk and Hill (1969) examined the effect of self-concept on a paired associate learning task. The subjects were fifth- and sixth-grade boys and girls. A main effect was found for self-concept on learning for boys but not for girls. Kubiniec (1970) in a discriminate analysis study found his measure of "phenomenal self" to be related to achievement. High "phenomenal self" was associated with high achievement for college males but not females.

Albott and Haney (1972) in a study using university undergraduates investigated psychology quiz performance and self-concept. In this study there was no effect for self-concept on achievement. Gill (1967) divided ninth graders into three groups--over achievers, average achievers, and underachievers. Gill (1967) found a main effect ($p. < .01$) for self-concept on three aspects of self--achievement related characteristics, acceptance by peers and teachers, and reaction to school program. Each of these aspects of self seems to be closely related to the notion of self-concept of ability rather than what we have termed general self-concept.

Thomas et al. (1969) conducted a study which examined gain scores on self-concept (general) and achievement (grade point average) over several months. The main experimental treatment involved attempting to enhance the self-concept with appropriate techniques, the expectation being that there would be corresponding

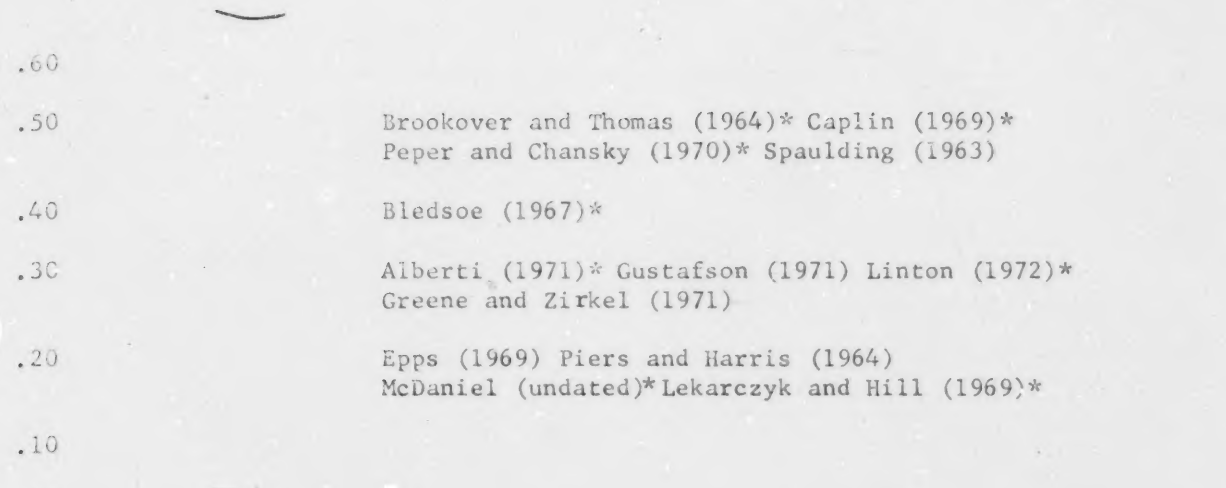

Figure 1 Summary of correlations between school achievement and general self-concept showing magnitude of correlation and significance levels. Many of these correlations are approximate averages of a number of correlations for different groups (sex, grade level) and a number of achievement variables (e.g., math, reading).

*Significant at or beyond the .05 level

.60	Jones and Strowig (1968)* Binder et al. (1970)* Brookover and Thomas (1964)* Caplin (1969)*
.50	Jones and Grieneeks (1970)* Joiner et al. (1969) Linton (1972)*
.40	Epps (1969) Busk et al. (1973)
.30	Sears (1963)*
.20	
.10	
.00	

Figure 2 Summary of correlations between school achievement and some form of academic self-concept showing magnitude and significance levels. Many of these correlations are approximate averages of a number of correlations.

*Significant at or beyond the .05 level.

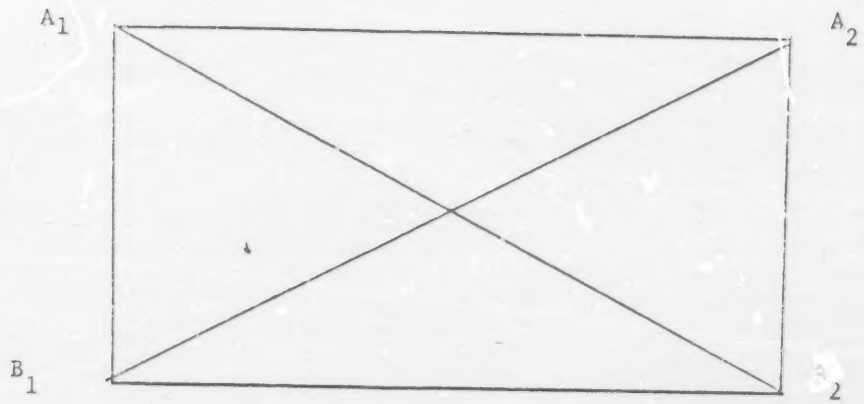

Figure 3. Diagram of a simple cross-lagged panel analysis.

changes in achievement over this period. Significant gains ($p. < .05$) on the self-measure did occur from November to June in the experimental group but not in the control groups. However, significant gains did not occur in achievement. Thomas et al. (1969) did note that improvement in self-perception "tends to reflect itself in improved academic performance as assessed by grades" (pp. 62-63). The value of experimental designs such as this one involving change over time with both self-concept and achievement being measured at each time of testing are of great value in the determination of relationships between these two variables. Unfortunately few studies such as this exist. Replicable findings of gain scores in achievement and self-concept over time with gains in self-measures analyzed with gains in achievement measure would help to resolve much of the puzzlement surrounding self-concept and achievement relationships.

Two other studies attempted to analyze self-concept and achievement change scores. There were not, however, analysis of variance designs. Carlton et al. (1967) used grade one to four disadvantaged students (85% black). In that study gains in reading scores and change in self-concept were found not to be significantly correlated ($p. > .05$). Soares and Soares (1971), whose subjects were disadvantaged grade one-six students, found that self-concept measures did increase over a six-week period. Achievement was also reported to have increased. It would have been interesting if the achievement and self-concept gains had been correlated and reported.

These three studies (Thomas et al., 1969; Carlton, 1967, and Soares and Soares, 1971) did not yield significant relationships between gain scores in self-concept and achievement. They do, however, indicate the possibility of changing the self-concept with appropriate treatments.

In these several studies the relationship between self-concept and achievement seems to be of a very specific nature. That is, some factors of self (Andrews, 1970) or aspects of self (Gill, 1967) seem to influence achievement but these studies in general do not reflect effects for all factors of the self. Lekarczyk and Hill's (1969) study indicates that there are some sex differences in that their study found that self-concept influences achievement for boys but not for girls. More will be said later in this paper regarding sex differences.

Mean difference studies

In this section studies will be discussed which tested for mean differences or chi-square relationships. Basically the issue in these studies is whether or not high achievers and low achievers differ according to self-concept or whether or not those who have high self-concepts differ according to achievement from those who have low self-concepts.

Coffin (1971) found three aspects of the self differing significantly between high and low achievers. His subjects were 60 tenth-grade blacks. On the self-concept of social competence high achievers scored lower than low achievers ($p. < .01$). On self-concept of academic competence high achievers scored higher ($p. < .01$). On self-concept of personal competence high achievers scored higher than lower achievers ($p. < .05$). No significant differences were found on self-concept of nonintellectual competence.

Frerichs (1971) used 78 black sixth graders as subjects and found that high grade point average subjects had higher self-esteem scores than low grade point average subjects. Rosenberg's (1965) findings were much the same.

Ozehosky and Clark (1970) divided 100 kindergarten students between high and low self-concepts using teacher ratings of the students self-concept. Among both boys and girls high self-concept was associated with high scores on a reading readiness test ($p. < .05$) and grade point average ($p. < .05$).

Combs (1964) assessed several aspects of self-concept of 50 eleventh-grade males. The achieving group scored higher than low achieving groups on self-adequacy and self-acceptance.

A chi-square study by Paschal (1968) supports the idea that a higher self-concept is associated with higher achievers. Another chi-square study by Dyson (1967) indicates that a high academic self-concept is associated with high achievement but not on a measure which Dyson (1967) termed acceptance of self.

In summary these studies indicate that high achievers seem to have higher self-concepts than low achievers. Some of the studies conceptualize several aspects of the self as opposed to a general self-concept. Some of these appear to be related to achievement and some do not.

Discrepancy Studies

One distinct methodological approach in self-concept/achievement research entails the use of discrepancy scores as measures of psychological functioning. The usual approach in this type of study is to compare the difference between two self-measures with some other variable--in this case, school-related achievement. A second approach is to compare variation in self-measure differences to variations in achievement over some time period (a semester of school year, for example) or following some specific treatment intervention (such as practicing certain kinds of verbal reinforcement or introducing new reading materials). One study illustrating the discrepancy approach is that of Gill (1971) in which he obtained one measured of the "perceived self" or the current self-picture and a second measure of the "ideal self." This second measure is primarily a reflection of what a subject wishes to become. Theoretically, the idealized self-picture is perceived by the S as "better" or more highly valued, than the current self-picture. The mathematical difference between the two measures is taken to be

higher "self-ideal discrepancy" or conversely "self-ideal congruency." The smaller the difference between the perceived self and the ideal self, the greater the congruency. Gill (1971) divided his 136 male and female ninth-grade subjects into two groups: over and underachievers then compared the mean self-ideal discrepancies of the two groups. He found that underachievers obtained higher mean discrepancies than over achievers (x2 signif. at .05 level). Another way of stating this is that underachievers in the sample population exhibited a low level of self-ideal congruence while higher achievers demonstrate more congruency. Current self-pictures of higher achievers more closely resembles their ideal self-picture. Although other studies, to be discussed below, are more complex in terms of variables considered, definitions used, and statistical methods employed; the basic method of obtaining discrepancy scores is essentially the same as Gill's (1971).

The discrepancy studies in the literature fall into two general categories, depending on the type of measure used in obtaining the discrepancy or congruency score. One group of studies (McCallon, 1967; Gill, 1971; Bailey and Bailey, 1971; Bailey, 1971; Deo and Sharma, 1970) might be classified as "Internal-Internal" in that the discrepancy score is derived from a comparison of two self-reports based on interval states: e.g., "what I am now" versus "what I would like to be" (in the future). Studies which use self-ideal discrepancy, such as Gill's (1971) typify this grouping. The second group of studies (Bailey, 1971; Bailey and Bailey, 1971; Harris, 1971; Guggenheim, 1969; Busk and Ford, 1973; Purkey, 1966) we shall term "Internal-External" in that a personal assessment is compared with some sort of objective measure or assessment. Typically, one's picture of oneself as one performs is compared to one's actual performance. The size of the difference between the two ratings is the discrepancy score, though some researchers utilize different terminology. Busk and Ford (1973) for example, take the congruence between

self-concept based on self-report and achievement based on standardized tests and grades to be a measure of "accuracy" of self. Bailey (1971) and Bailey and Bailey (1971) discuss self-concept "realism" in terms of difference between self-rating of ability ond objective achievement ability indexes (IQ and grades). Harris (1971) refers to "certainty," "attitude," and "accuracy" as designators of self-concept functioning.

In a sense, the Internal-External studies of self-concept seem to deal with self-concept status, while the Internal-External studies deal with self-concept functioning or implementation of self-concept in specific areas of behavior. There is some question in the reviewer's minds as to whether or not (1) the Internal-External type of study really deals with self-concept in any direct way and (2) whether or not the studies utilizing the difference between two measures of internal status assess self-concept as a construct. These questions will be dealt with later, however.

Internal-Internal discrepancy studies

Of the five studies reviewed in this area, four describe a significant relationship between a self-concept index and an achievement variable. (See Figure 4.) Gill (1971) studied 168 ninth-grade subjects classified as "underachievers" and "over achievers." On the basis of IQ and academic aptitude tests, it was found that underachievers of both sexes obtain higher mean self-ideal discrepancy scores than over achievers. Gill's (1971) chi-square comparison of the two groups showed differences significant at the .05 level.

Insert Figure 4 about here

McCallon (1967) divided his 261 fifth- and sixth-grade subjects into low, median and high self-ideal discrepancy groups in order to study sex and achievement

differences among them. Using multiple regression to determine differential achievement on the Stanford Achievement Battery, he found that self-ideal discrepancy contributed significantly to achievement in social studies and science ($p. < .05$) but not to achievement on six other subtests. Since his achievement data suggested a nonlinear relationship between achievement and self-ideal discrepancy, he tested for nonlinearity. These tests produced conflicting results. Nevertheless, McCallon's findings tend to support Gill's in that lower achievement is associated with higher self-ideal discrepancy. It is important to note, however, that McCallon is dealing with measured achievement levels without taking aptitude or IQ into account.

Bailey (1971) working with 100 low-ability college-age subjects matched by sex, class rank, and IQ, examined the differences between self and self-ideal concepts of college ability in relation to actual achievement as measured by grade point average. Dividing his subjects into two groups, "achievers" ($\bar{X}$ = GPA - 2.25) and "underachievers" ($\bar{X}$ = GPA - 1.45), Bailey found that achievers demonstrate significantly less (t-test, $p. < .025$) self-ideal discrepancy when compared to underachievers. It is also important to note that when the self-measure is taken by itself, achievers rate themselves consistently higher ($p. < .025$) on self-concept of ability. This result is of some importance in that the achievers and underachievers are not significantly different in measured ability (Henmon-Nelson IQ).

Another study by Bailey and Bailey (1971) produces similar results, showing a relationship between self-ideal discrepancy (self-concept of ability) and ability to make accurate or realistic predictions of subsequent performance. For this experiment the researchers divided their subjects into "realistic" and "unrealistic" groups based on self-ratings of college ability and two criteria measures: Otis IQ scores and grade point average. Subjects demonstrating high

self-ideal discrepancy are significantly less accurate in their predictions of performance (t-test, $p. < .0005$); that is, they are "unrealistic," and they are significantly lower in grade point average ($p. < .0005$). The low self-ideal discrepancy group was found to rate much higher on the Self-Scale and also demonstrated higher IQ's as well as higher grade point averages. These results tend to confound findings of Bailey's earlier study since it is not clear to what extent higher IQ contributed to higher self-concept and lower discrepancy.

Deo and Sharma's (1970) study of self-ideal discrepancy in 700 adolescents ($\bar{X}$ age 16.7) found a small, nonsignificant correlation between discrepancy scores and achievement as measured by standard examinations and grades over a three-year period (Pearson $r = .058$). Their data, like McCallon's (1967) suggested a nonlinear relationship between discrepancy and achievement, which was subsequently demonstrated to exist.

Internal-External discrepancy studies

This grouping of discrepancy studies deals with the extent of agreement or congruence between a self-assessment or prediction and an actual outcome. (See Figure 5.) This difference between the two measures is taken to be an index of self-concept functioning. Researchers associate the discrepancy with "realism" of self-concept (Bailey, 1971; Bailey and Bailey, 1971) or degree of "self-insight" (Purkey, 1966). Harris (1971) compares expected grades with actual grades calling the discrepancies "certainty," "attitude," and "accuracy" of scholastic self-concept. Guggenheim (1969) attempts to associate self-esteem with the congruence (discrepancy) between actual achievement and expectancy for achievement. He refers to this congruence variously as "self-awareness" or reality functioning. Since he found no significant relationship between level of esteem and discrepancy, it is not entirely clear what the discrepancy score represents other than, perhaps, an aspiration level.

Study	Ages/Grade	Sex m/f	Data treat	Relationship
McCallon (1967)	5th and 6th Gr.	129/132	Mult. regress. & F test	(1) Self-ideal discrepancy contributes significantly to achievement in social studies and science ($p. < .05$)
			Nonlinear test	(2) Inconclusive
Gill (1971)	9th Gr.	68/68	X^2	Significant difference (.05) between over and underachievers
Bailey and Bailey (1971)	College	36/43	T-tests	S's w/ lower self-ideal discrepancy predicts actual performance more accurately ($p. < .0005$)
Bailey (1971)	College	70/30	T-tests	Achieving S's had lower self-ideal discrepancy ($p. < .025$)
Deo and Sharma (1970)	Adolescents x age-16.7	362/338	Pearson r	r-.058 no significant relationship between self-ideal discrepancy and achievement

Figure 4. Summary of self-ideal discrepancy studies (internal-internal)

Insert Figure 5 about here

Purkey (1966) designed a study to examine personality and self-perception difference between 11th and 12th grade "gifted" achievers (n = 95) and "average" achievers (N = 63). Personality was measured by the California Psychology Inventory (CPI). Self-perceptions were obtained from the Self-Ranking Inventory (SRI) which was based on the 18 scales of the CPI. Using the SRI as the predictor and the CPI as the criterion measure, Purkey found that gifted male achievers obtain significantly lower discrepancies on nine of the 18 scales, while female gifted achievers obtain significantly lower discrepancies on seven of 18 scales. None of the other differences reached significance. In no case did the average achievers display significantly lower discrepancy between predictor and criterion measures. Purkey equates the high degree of congruence displayed by the gifted with "self-insight" but makes no claims that his evidence supports the notion that high achievers are more self-confident or display more positive attitudes toward self.

Harris (1971) compares "scholastic self-concept" of 110 seventh graders and 109 11th graders. He generates three aspects of self-concept by computing three different discrepancies between self-prediction of grades and actual grades. Without entering into a lengthy description of the statistical derivation, it is sufficient to report that these three discrepancies represent "certainty," "attitude," and "accuracy." When these three dimensions are correlated with grade point average, significant negative correlations are achieved at the .05 level between certainty and GPA as well as between accuracy and GPA. (Note: the negative correlations are expected since difference scores are being compared to 'gains' in achievement.) In other terms according to Harris's data, there is

a significant relationship between discrepancy (which defines self-concept) and level of achievement. Unfortunately, the correlations are small (-.23 and -.25) and Harris does not report similar data for the 11th grade S's in his study. It would appear, also, that the discrepancy scores account for only a very small percentage of the variance in GPA (5 or 6%) whereas, IQ in Harris's study accounts for close to half of the variance in achievement.

Guggenheim (1969) was primarily interested in determining social difference in self-esteem and achievement variables. His sample population consisted of 56 black and white sixth graders from a large Eastern metropolitan area. Although he employed a direct measure of self-esteem (a 20-item semantic differential), he also collected data on differences between expected performance and actual outcomes. Analysis of variance failed to show any significant differences between level of esteem and discrepancy scores predicting actual achievement. This was not a direct measure of achievement, hence, any relationships between esteem, discrepancy, and performance remains speculative.

Studies (Bailey, 1971; Bailey and Bailey, 1971) mentioned in the previous section are also included in this section since they involve a "reality discrepancy" measure or, to put it another way, an index of self-concept realism. Realism, here, is defined as the discrepancy between self-concept of ability and objective indices of achievement. In one study (Bailey, 1971) 118 college-age general psychology students were divided into "realistic" (low discrepancy) and "unrealistic" (high discrepancy) groups. Data on grade point average show that S's in the realistic group, or low discrepancy groups, were higher achievers than the unrealistic S's (t-test $p < .0005$). In the other study (Bailey and Bailey, 1971) which involved 100 low-ability college students achieving at various levels, achievement as measured by GPA was found to be associated with low levels of Reality Discrepancy than was

under achievement (t-test $p. < .005$). Achievement was also associated with a higher self-concept of ability ($p. < .025$).

On the basis of the evidence available it is safe to conclude that there is a definite relationship between accuracy of prediction, or realism, and differential achievement. The relationships appear to be statistically inverse meaning that low discrepancy is associated with higher levels of achievement. The more accurate a subject is in predicting his achievement, the more likely is he to be an achiever.

In a sense, the discrepancy studies which we have classified "Internal-External" might better be dealt with under the heading of "self-evaluation," "self-prediction," "level of aspiration," "expectation for success-failure" or the like, rather than in the topic area of "self-concept." This research leads to a number of questions:

1. Are accuracy or realism of self-perception defining characteristics of the self-concept or are they results of a self-concept interacting with the demand characteristics of a given situation?
2. Are realism or accuracy of self-perception indications of self-acceptance as McCallon suggests (McCallon, 1967)? Are self-acceptance and self-concept the same?
3. Is it logical to define self-concept in terms of an achievement criterion measure, then use the same criterion measure to define differential achievement groups, and then show self-concept (which is already a function of achievement) to be correlated with achievement? This may be almost the same as saying that differences in achievement can be accounted for by differences in achievement?

The data available to us suggests that self-concept is a multi-factor construct (see earlier discussion pp. 3-4). One way of assessing discrepancy data may be to

view it as noncontradictory of the multi-factor argument in the sense that it is measuring the functioning level of many facets or even a single facet of the global self-concept. In other words, discrepancy does not tell us what the self-concept is, but how it works regardless of its contents or facets. The issue in these studies, when viewed this way, is not what kind of description a subject makes of himself but what kind of evaluation a subject makes of his self-description. If this is the case, the notions of a continuium based high-low, good-poor, adequate-inadequate self-concept have little functional meaning since points along the continuium are typically based on objectively defined standards of desirability, or perceptions of objective standards. As an example, a subject who values high achievement, but is not in fact capable of high achievement (as measured by IQ as aptitude instruments) will find his consistently low achievement unacceptable. The inconsistency between the subjective self-concept ("self as achiever") and objective "facts" could account for differential self-evaluations but not necessarily for differences in achievement. In line with this analysis, a subject achieving all he is capable of may not show a concomitant gain in achievement if his subjective self-evaluation is changed. Conversely, subjects showing gains in achievement may not demonstrate similar gains in self-concept, though his achievement level may now be more in line with how he evaluates himself.

These appear to be the issues dealt with by these researchers studying discrepancies between self-concept and actual achievement. Perhaps the contributions of the discrepancy literature is in demonstrating that "self-acceptance" is a key variable in optimal (rather than high) achievement.

IE

Study	Ages/Gr.	Sex #M/F	Prediction/ Criterion	Data Treatment	Relationship of Discrepancy to Achievement
Purkey (1966)	11th & 12th gr.	79/79	Self-ranking inventory California Psychological Inventory	t-tests Mann Whitney U test	1. Male gifted achievers show lower discrepancy on 9 of 18 psy. variables 2. Female gifted achiever show lower discrepancy on 7 of 18 psy. variables compared to lower ach. ($p. < .001$ to .05)
Bailey (1971)	college	35/15	Self-rating of ability actual achievement level (GPA) (= realism)	t-test	Achievers show lower discrepancy than under-achievers ($p. < .005$ level
Bailey and Bailey (1971)	college	36/43	Self-rating of ability and actual achievement level (SPA) (= realism)	t-test	S's with lower discrepancy had higher mean achievement ($p. < .0005$)
Guggenheim (1969)	6th gr.	56 S's	Expectation of achievement/ actual achievement	ANOVA	No sign. diff. between high & low self-esteem S's on congruence between actual achievement & expected achievement
Harris (1971)	7th & 11th gr.	110-7th 109-11th	Prediction of grades/ actual grades	Correlation t-test	Low discrepancy associated with higher grades ($p. < .05$)

Figure 5. A summary of studies using self-ratings and objective ratings (internal-external)

Ethnic, Race, Socioeconomic Status, and Sex Differences

A number of studies indicate relatively different relationships between self-measures and achievement when the variables of ethnicity, race, socioeconomic status, and sex are analyzed. In the following sections these studies will be surveyed.

Sex differences

Although this literature reviewed is specifically concerned with the relationship between self-concept and school achievement for a variety of sample populations, a number of studies reveal corollary findings related to sex differences. Jorgenson and Howell (1969) for example, show that male self-ideal discrepancy decreases between seventh and 11th grades, whereas no change occurs for females. Data in the Ozehosky and Clark (1970) study indicate that among the group labelled "low self-concept," boys tended to have higher self-concepts than girls. Bakan (1971) reports that females exhibit significantly lower self-concepts than males. Bledsoe (1967) by contrast, reports that fourth- and sixth-grade females have significantly higher self-esteem than males in the same grades. This difference was significant at the .01 level. Albott and Haney (1972) found sex-linked self-concept differences related to choice of a study option for college students. The latter appears to be a qualitative difference rather than a quantitative one.

These findings raise the issue as to whether or not self-concept as a variable is a more important factor in achievement for one sex over the other. The weight of the evidence surveyed tends to indicate that this is the case. Of the 16 studies considered in this area, a bulk of them contain findings which indicate a self-concept/school-achievement relationship which is either greater (a higher correlation) for males than females, (Jones and Grieneeks, 1970; Brookover and

Thomas, 1964; Fink, 1962), or significant correlations are found for males but not for females (Bledsoe, 1967; Alberti, 1971; Sears, 1963; Epps, 1969; Kubiniec, 1970; Shaw et al., 1960; Shaw and Alves, 1963). Only four studies have findings which indicate that for females a self-concept variable contributes more to an achievement variable than for males (Binder et al., 1970; Jones and Strowig, 1968; Brookover and Thomas, 1964; Bledsoe, 1967).

Of these four studies which show a higher relationship for females than males there appears to be no trend which leads to any sound conclusions. Binder et al., (1970) report higher significant correlation coefficients between self-concept of ability and grade point average for 12th-grade females when compared to 12th-grade males, but the significance of the difference between males and females is not tested. Brookover and Thomas (1964) show that for females specific self-concept of ability correlates higher with grades in social studies than for males. In fact, social studies was the only subject area in which the correlation between self-concept of ability and grades was higher for females (Math, English, Social Studies, and Science were considered). Bledsoe (1967) studying fourth- and sixth-grade students, found a significant correlation for female subjects only between self-concept and reading comprehension which was one of six school-related achievement areas. Male subjects, by comparison, demonstrate significant relationships for all six achievement areas (reading vocabulary, reading comprehension, arithmetic reasoning, arithmetic fundamentals, English, and spelling). Jones and Strowig's study (1968) of 12th graders indicates that the combination of identity development, self-concept, self-expectations (all self-measures), and IQ were better predictors of subsequent achievement for females than for males. In this instance, female self-concept carried a higher beta weight; that is, a greater predictive power for achievement, than did male self-concept.

Taking the evidence at face value might lead one to conclude that self-concept makes a difference for females in reading and social studies achievement and that self-concept has some value in predicting future achievement among older females. However, such statements are tentative, at best, due to the evidence on male self-concept as a contributing factor to achievement.

Contradicting the evidence presented by Jones and Strowig (1968), Jones and Grieneeks (1970) report that self-concept as a predictor of achievement carries a higher beta weight, i.e., is a better predictor of achievement for males than for females. Brookover and Thomas (1964) show that specific self-concept of ability of males correlates higher with grades in mathematics and science than does female self-concept of ability. Self-concept also correlates significantly with social studies grades for males but, as reported earlier, this correlation is higher for females. Fink (1959), in an earlier study, found a stronger relationship between self-concept and school achievement for males than for females. Similarly, Shaw et al., (1960) and Shaw and Alves (1963) indicate that male achievers have more positive self-attitudes or self-concepts than male underachievers, but that this relationship does not hold for female achievers and underachievers. Bledsoe (1967), who found some evidence favoring female self-concept (see above), also reports data indicating that self-concept is a more important variable for male subjects. Male self-concept correlated with achievement in all subject-content areas, whereas female self-concept correlated in only one area. Alberti (1971), reporting data for first-, second-, and third-grade males and females, shows that self-concept is an important aspect in reading achievement for second-grade males though it is not for females at that grade level. Self-concept correlates with reading achievement for first-and third-grade males as well, but at these two levels

Alberti's (1971) data reveal a stronger relationship for females (see Bledsoe, 1967). On the other hand, when mathematics achievement is considered, self-concept appears to be more of a contributing factor for males as opposed to females (Alberti, 1971). Pauline Sears' (1963) study of self-esteem generated data showing that in the fall of the school year, self-concept bore a significant relationship to measured achievement for both males and females, but that on a retest in the spring, the relationship failed to appear for females. Male subjects, however, continued to demonstrate a correlation between some aspects of self-esteem and a standardized achievement measure. One study (Epps, 1969) suggests that the importance of self-concept for males cuts across racial categories. Epps (1969) studied relationships of self-concept and achievement among northern and southern black males and females. Partialing out the effects of other variables, Epps (1969) found significant correlations between self-esteem and vocabulary achievement for both northern and southern black males. The relationship did not exist for black females.

One final study in this area deserves brief note. Kubiniec (1970) using a factor analytic approach to the measurement of self-perception, found a significant relationship ($p. < .05$) between "phenomenal self" and achievement for males but not for females. He was able to account for this difference by isolation of the factors labelled "past self-evaluation" and "ideal-self-evaluation" (correlations with achievement are .48 and .45, respectively). Kubiniec (1970) concludes that for males the <u>evaluative</u> aspects of self, regardless of the <u>descriptive</u> aspects, account for variation in achievement. This evaluative factor does not appear to be important for the female population. In fact, for females, perception of the external environment appears to be a more important factor in achievement than perception of self.

In summation, it would appear from the evidence brought to bear on sex differences in self-concept as they are related to achievement, that self-perception variables are more important in male achievement than in female achievement. Since there is some data to dispute this claim, this conclusion is also presented tentatively. One important, and potentially confounding, variable not considered in this section, is that of age differences. Although it appears that self-concept is more important for male achievement, it is not clear whether or not this is true for males of all ages.

Ethnic and racial differences

When ethnic or racial groups are considered separately, some differences in self-concept as a function of achievement are suggested, but not directly demonstrated. Of the five studies considered to show racial-ethnic differences, (Gibby and Gabler, 1967; Guggenheim, 1969; Busk et al., 1973; Gustafson, 1971; Linton, 1972) none show evidence that reported differences in self-concept account for differences in achievement.

The study by Gibby and Gabler (1967) is characteristic. Though they did not include a school-related achievement variable in their research, their data reveal that blacks attain higher "reality discrepancy" and "self-discrepancy" scores than whites (diff. signif. at .05 level). However, these differences are moderated by other variables (sex and IQ). They conclude that "...there are significant differences in self-concept between similar groups of negro and white children but that these differences are dependent on the sex and IQ level of the children as well as on the specific measures being used" (p. 147). Similarly, Guggenheim (1969) found self-esteem differences and achievement differences between blacks and whites. He reports that "Negro pupils had significantly greater descrepancies between their actual achievement and their expectation for achievement"

(p. 67). Analyses also indicated a significant difference in achievement with whites outscoring blacks. However, Guggenheim (1969) is unable to account for achievement differences in terms of self-esteem differences.

Two studies involving comparisons of Mexican-American students and nonMexican-American students report similar findings. Gustafson (1971) found that the correlation between self-concept and achievement was higher for nonMexican-Americans than for Mexican-Americans. Linton (1972) shows the same results when both academic self-concept and global self-concept are considered. On academic self-concept, correlations for Anglo-Americans ranged from .41 to .56; for Mexican-Americans the range was from .34 to .49. Global self-concept correlations with achievement were lower for both groups, but the range was higher for the Anglo-American students. Busk et al. (1973) studied sixth-, seventh- and eighth-grade black and white students. These researchers report results similar to those of Linton (1972) and Gustafson (1971). The correlations between self-concept of ability and grades was consistently higher for whites than for black students. From this evidence Busk et al. (1973) concludes that whites are more "accurate" in assessing their school-related abilities.

The studies by Gustafson (1971), Linton (1972), and Busk et al. (1973) indicate a general trend in favor of white students in that a self-concept variable contributes more to achievement variability among white students than among non-white students. One other study the reviewers are aware of supports the assertions that there are self-concept differences when ethnic and racial minority subjects are compared to subjects from the dominant culture (Zukel and Moses, 1971). However clear these self-perception differences may appear, there is no clear evidence that such differences account for achievement differences.

Socioeconomic status differences

There is some evidence in the research literature to suggest that children from different socioeconomic classes perceive themselves differently. Soares and Soares (1969) and Trowbridge (1972) for example, found that lower class children had higher self-concepts than middle-class students, though there was no indfcation of how this perception differential affected achievement. In fact, none of the studies included in this review show direct interactive effects of self-concept, SES, and achievement. Epps (1969) found that self-concept of ability is significantly and positively related to SES, but found no relationship between self-esteem and SES. To the extent that Epps (1969) also discovered a significant relationship between self-concept of ability and achievement, there may be an inferential relationship between self-concept, achievement, and SES. However, it is not clear how SES moderates the relationship between the other two variables. Confounding this speculation is Epps (1969) finding that SES is significantly related to grades for slightly more than one-fourth of his sample population. The relationship does not exist for the remaining three-quarters of his sample.

Linton (1972) classified each of his two sample populations by high, middle, and low SES. He found that among Mexican-American students academic self-concept correlates with achievement only among middle SES subjects--a relationship that appears not to exist for high or low SES Mexican-Americans. By contrast, among Anglo-American students academic self-concept correlated most strongly with achievement for high and middle SES subjects. A very weak relationship was found for low SES Anglo-American subjects. When global self-concept and achievement are examined in relation to SES, Linton (1972) shows that among Mexican-Americans significant correlations of self-concept and achievement exist only for middle and low SES students, but among Anglo-Americans the relationship is apparent only

among high and middle SES students. If the trends in Linton's data are at all meaningful, then it would appear that SES is a more meaningful variable for Anglo-Americans than for Mexican-Americans when self-concept and achievement are concerned. It appears that self-concept contributes more to achievement for high and middle SES students in that group. Among Mexican-Americans, however, self-concept contributes significantly to achievement among middle and low SES students. Overall, disregarding ethnic differences, Linton's study suggests that self-concept may contribute more to achievement variance for students in the middle SES category than to any other SES group.

In conclusion, there would appear to be differences in self-perception among different socioeconomic classes, but the extent to which these differences affect achievement is not at all clear. The sketchy evidence examined in this section fails to reveal any apparent trends, and in the absence of additional information, generalizable conclusions are not possible.

Conclusions

The literature is clear that there is a significant associational relationship between some aspects (factors) of the self and scholastic achievement. To the best of our knowledge only one study exists which indicates a causal relationship and this one study (Calsyn, 1973) indicates that achievement is the independent variable whereas self-concept of ability is the dependent variable. Other studies indicate that this relationship is stronger with males than females and with Anglo-Saxon middle socioeconomic status persons than members of lower SES and minority groups.

A few studies have measured gains of self-concept and achievement over time and have been able to change positively the self-concept. Yet these studies have not been able to show significant statistical relationships between the two

measures of change. If the relationships were causal rather than associational, changes in one direction on one measure should produce changes in the same direction on the other measure. This may be due to the relatively small shared variance between the measures of self and school achievement. The shared variance (r^2) of the highest correlations in Figure 1 (general self-concept) is 25 percent ($r^2 = .25$) and 36 percent ($r^2 = .36$) for self-concept of ability.

Those who wish to increase school achievement by changing self-concept have relatively little empirical groundings. If the purpose is to increase school achievement, direct teaching for achievement should be more effective than trying to enhance self-concepts. On the other hand, the enhancement of self-perceptions could be seen to be a worthwhile goal of itself, achievement notwithstanding.

The problem of measurement of self-concept is very ubiquitous. Wylie's (1961) statements about the problems of measurement of self-concept seems practically as true today as it was at that date. Wylie (1961) did point out the potential value of a factoral approach to the measurement of self-concept and some progress has been made in that regard. Our purposes did not include an analysis of measurement problems. Yet throughout this investigation we were constantly confronted with the wide variety of assessment approaches. This problem makes it difficult for reviewers to note equivalencies and inequivalencies among the findings.

The measurement problems seem to be associated with conceptual or theoretical differences among investigators in the area. Here again, the reviewers did not attempt a review of the conceptual and theoretical tangles in the area. The tangles constantly plagued us, nonetheless. If an investigation claimed to have measured self-concept or self-esteem, we accepted with benign resolve.

There is ample evidence that an aspect of self-concept such as self-concept of ability could serve as a helpful predictor of achievement. Many of the studies

reviewed indicate a substantial relationship between self-concept of ability and school achievement. Self-concept of ability should probably be included in multiple prediction studies of achievement. Children usually have many experiences which provide them with knowledge and perceptions as to their scholarly ability. Their self-perceptions of their ability seem predictive and perhaps should be included along with other predictors in achievement prediction studies. It may, however, be more efficient prediction-wise to get a direct measure of current achievement for later prediction rather than the person's self-concept of ability. This is definitely suggested from Calsyn's (1973) cross-lagged panel analysis, since achievement was preponderant over self-concept of ability.

It appears that there is a possibility of interdependence between achievement and self-concept of ability. Other aspects of the self-concept seem to reflect less interdependence with achievement. Early childhood educators should not expect that changing general self-concept will effect achievement if one is to have confidence in such findings as Calsyn (1973). On the other hand, early childhood educators may well wish to help children reflect on their achievement by providing feedback to the child about achievement successes which would in turn develop the child's self-concept of ability.

CKW:dd

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